

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

C.A. No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

**DEFENDANT GOOGLE LLC'S OPPOSITION TO
PLAINTIFF'S MOTION TO EXCLUDE CERTAIN DOCUMENTS
AND TESTIMONY OF DR. MIRIAM LEESER DUE TO IPR ESTOPPEL**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. BACKGROUND	2
A. Singular’s Motion for Partial Summary Judgment of Validity Based on IPR Estoppel	2
B. Dr. Leeser’s Invalidity Expert Report.....	3
C. Dr. Sunil Khatri’s March 3, 2023 Rebuttal Report.....	4
D. Dr. Leeser’s March 8, 2023 Deposition.....	5
III. LEGAL STANDARD.....	5
IV. ARGUMENT	7
A. Singular Has Failed to Prove That the Leeser Exhibits Constitute “Printed Publications” or That They “Reasonably Could Have [Been] Raised” as Grounds in the IPRs.	7
1. Singular Bears the Burden of Proof on These Issues.....	8
2. Singular Has Failed to Conclusively Establish That the Leeser Exhibits Constitute “Printed Publications.”	8
3. Singular Has Failed to Conclusively Establish That the Leeser Exhibits “Reasonably Could Have [Been] Raised” in the IPRs.	12
a. Singular’s hybrid subjective-objective argument is irrelevant and fundamentally flawed.	14
b. Even considering Singular’s hybrid subjective-objective argument, a genuine fact issue precludes granting Singular’s Motion.	17
B. Google Should Be Allowed to Introduce and Use the Leeser Exhibits To Corroborate Dr. Leeser’s Testimony About the VFLOAT System.....	18
V. CONCLUSION.....	20

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Acceleration Bay, LLC v. Activision Blizzard Inc.</i> , 908 F.3d 765 (Fed. Cir. 2018).....	10, 11
<i>Acceleron, LLC v. Dell, Inc.</i> , No. 1:12-CV-4123, 2020 WL 10353767 (N.D. Ga. Mar. 30, 2020)	14
<i>Blue Calypso, LLC v. Groupon, Inc.</i> , 815 F.3d 1331 (Fed. Cir. 2016).....	<i>passim</i>
<i>Cal. Inst. of Tech. v. Broadcom Ltd.</i> , No. CV 16-3714, 2019 WL 8192255 (C.D. Cal. Aug. 9, 2019), <i>aff'd</i> , 25 F.4th 976 (Fed. Cir. 2022).....	19, 20
<i>Clearlamp, LLC v. LKQ Corp.</i> , No. 12 C 2533, 2016 WL 4734389 (N.D. Ill. Mar. 18, 2016)	13
<i>Finnigan Corp. v. Int’l Trade Comm’n</i> , 180 F.3d 1354 (Fed. Cir. 1999).....	19
<i>Ironburg Inventions Ltd. v. Valve Corp.</i> , 64 F.4th 1274 (Fed. Cir. 2023)	6, 8, 13, 15
<i>Jazz Pharms., Inc. v. Amneal Pharms., LLC</i> , 895 F.3d 1347 (Fed. Cir. 2018).....	11, 12, 13
<i>M-I LLC v. FPUSA, LLC</i> , No. 5:15-CV-406, 2020 WL 13413830 (W.D. Tex. Aug. 20, 2020).....	14
<i>Medtronic, Inc. v. Barry</i> , 891 F.3d 1368 (Fed. Cir. 2018).....	11, 12
<i>Meyer Intell. Props. Ltd. v. Bodum, Inc.</i> , 690 F.3d 1354 (Fed. Cir. 2012).....	6
<i>Microsoft Corp. v. i4i Ltd. P’ship</i> , 564 U.S. 91 (2011).....	18
<i>O’Connor v. Steeves</i> , 994 F.2d 905 (1st Cir. 1993).....	6
<i>Palomar Techs., Inc. v. MRSI Sys., LLC</i> , 373 F. Supp. 3d 322 (D. Mass. 2019)	6

Palomar Techs., Inc. v. MRSI Sys., LLC,
No. CV 18-10236-FDS, 2020 WL 2115625 (D. Mass. May 4, 2020).....12, 15, 16, 17

Pavo Sols. LLC v. Kingston Tech. Co.,
No. 8:14-cv-01352, 2020 WL 1049911 (C.D. Cal. Feb. 18, 2020)6

Samsung Elecs. Co. v. Infobridge Pte. Ltd.,
929 F.3d 1363 (Fed. Cir. 2019).....9, 10

SiOnyx, LLC v. Hamamatsu Photonics K.K.,
330 F. Supp. 3d 574 (D. Mass. 2018)8, 13, 18

TransWeb, LLC v. 3M Innovative Props. Co.,
812 F.3d 1295 (Fed. Cir. 2016).....18, 19

Woodland Tr. v. Flowertree Nursery, Inc.,
148 F.3d 1368 (Fed. Cir. 1998).....19

Statutes

35 U.S.C. § 102(a)3, 19

35 U.S.C. § 102(b)3, 19

35 U.S.C. § 102(g)(2)3, 4, 19

35 U.S.C. § 311(b)8

35 U.S.C. § 315(e)(2)..... *passim*

I. INTRODUCTION

Defendant Google LLC (“Google”) respectfully opposes Plaintiff Singular Computing LLC’s (“Singular”) Motion to Exclude Certain Documents and Testimony of Dr. Miriam Leeser Due to IPR Estoppel (Dkt. 475, “Motion”). Singular’s Motion seeks to exclude six documents (the “Leeser Exhibits”) referenced by Dr. Miriam Leeser, one of Google’s invalidity experts, in her expert report, on the basis of IPR estoppel. Dkt. 475-1 (“Mot.”) at 3–4.

Singular’s Motion should be denied for two simple and independently dispositive reasons: it has failed to establish either (1) that the Leeser Exhibits constitute “printed publications” or (2) that a skilled searcher conducting a diligent search reasonably could have been expected to locate the Leeser Exhibits at the time Google filed its petitions for *inter partes* review of the Asserted Patents.¹ Singular undisputedly bears the burden of proving both of these propositions for IPR estoppel to attach, yet it has barely even attempted to do so.

Even if Singular had made a sufficient showing on these issues, which it has not, Google should be permitted to use the Leeser Exhibits at trial to corroborate Dr. Leeser’s oral testimony, irrespective of IPR estoppel. The law requires corroboration for the testimony of prior inventors, like Dr. Leeser, whose work is asserted as invalidating prior art. The Court has already held that Google is not estopped from presenting its invalidity theories based on the VFLOAT system Dr. Leeser helped develop. Google should therefore be allowed to meet its evidentiary burden with contemporaneous corroboration of Dr. Leeser’s testimony, which the Leeser Exhibits provide. Excluding the Leeser Exhibits would be tantamount to precluding Google from corroborating Dr. Leeser’s oral testimony, which is not the purpose of IPR estoppel and would be inconsistent with how other courts have addressed the presentation of a prior art system in view of IPR estoppel.

¹ The Asserted Patents are U.S. Patent Nos. 8,407,273 and 9,218,156.

II. BACKGROUND

Singular’s Motion seeks to exclude six documents referenced by Dr. Leaser in her expert report on invalidity: (1) source code for the VFLOAT system that Dr. Leaser helped develop in the late 1990s and early 2000s (“VFLOAT Source Code”); (2) slides used by Dr. Leaser for her presentation at the 2002 High Performance Embedded Computing (HPEC) conference (“HPEC 2002 Slides”); (3) an abstract Dr. Leaser submitted to the organizers of HPEC 2002 summarizing her proposed presentation (“HPEC 2002 Abstract”); (4) the VFLOAT webpage as archived by the Internet Archive in 2003 (“March 2003 VFLOAT Webpage”); (5) the slides for Dr. Leaser’s presentation at the 2004 Military and Aerospace Programmable Logic Devices (MAPLD) conference (“MAPLD ’04 Slides”); and (6) an abstract Dr. Leaser submitted to the organizers of MAPLD ’04 summarizing her proposed presentation (“MAPLD ’04 Abstract”). *Id.* at 3–4.

A. Singular’s Motion for Partial Summary Judgment of Validity Based on IPR Estoppel

On November 3, 2022, Singular filed a motion for partial summary judgment of validity based on IPR estoppel (“IPR Estoppel MSJ”). Dkt. 377. As Google explained in its opposition, Singular’s IPR Estoppel MSJ “d[id] not even attempt to engage with the specific grounds and supporting evidence that Google may actually present at trial, nor could it do so, because Singular elected to file its motion nearly two months before Google’s invalidity expert reports are due.” Dkt. 392 at 3.² On April 6, 2023, the Court denied Singular’s IPR Estoppel MSJ. Dkt. 447 (“Estoppel MSJ Order”). In its Estoppel MSJ Order, the Court held that Google “will be permitted to raise invalidity defenses” based on prior art systems, including the VFLOAT system, but will be “estopped from using patents and printed publications of which it was aware,

² Unless otherwise noted, all emphases have been added, and all quotations have been cleaned up by omitting internal quotation marks, alterations, footnotes, and citations.

or reasonably should have been aware, at the time of the IPR proceeding.” *Id.* at 2, 14.

B. Dr. Leeser’s Invalidity Expert Report

In her December 22, 2022 expert report, Dr. Leeser describes how, in the early 2000s, she and her graduate students at Northeastern University developed a system for highly parallel low-precision, high-dynamic range computation (the “VFLOAT system”), which was in part based on a library of parameterized hardware modules they created for performing variable-precision arithmetic on floating-point numbers with custom formats, written in VHDL and which they named “VFLOAT.”³ Ex. 1 (Leeser Rpt.) ¶¶ 74–139.⁴ Dr. Leeser’s report provides examples of the multiple conferences or other meetings at which she and others disclosed and described the VFLOAT system and the code library used to build it, including the HPEC 2002 and MAPLD ’04 conferences. *Id.* Dr. Leeser’s report explained how the VFLOAT system was reduced to practice, publicly known, and in public use by approximately 2002. *Id.* ¶¶ 140–268. Relying on her expertise in the design and operation of reconfigurable computing systems, such as FPGAs,⁵ Dr. Leeser opines in her report that the VFLOAT system anticipates and/or renders obvious the asserted claims as “known or used by others in this country” under 35 U.S.C. § 102(a), as a “public use” of the claimed invention under 35 U.S.C. § 102(b), and as a prior invention that was not abandoned, suppressed, or concealed under 35 U.S.C. § 102(g)(2).⁶ *Id.*

³ As Dr. Leeser’s report explains, “parameterized” refers to the fact one or more parameters could be specified to dictate their structure and operation. VHDL is a type of code used to specify the structure and operation of computing hardware.

⁴ Citations to numbered exhibits refer to those attached to the Declaration of Vishesh Narayan in Support of Defendant Google LLC’s Opposition to Plaintiff’s Motion to Exclude Certain Documents and Testimony of Dr. Miriam Leeser Due to IPR Estoppel (“Narayan Decl.”), filed herewith.

⁵ FPGA stands for “Field-Programmable Gate Array” and is a type of reconfigurable computing hardware.

⁶ As noted in Google’s contemporaneously-filed opposition to Singular’s Motion to Exclude

Dr. Leeser did not opine that any of the Leeser Exhibits themselves anticipated or rendered obvious the asserted claims, or that these documents constituted “printed publications.” Nor does her report use the Leeser Exhibits as part of any invalidity ground that could have been the basis for IPR. Dr. Leeser did, however, identify the Leeser Exhibits as corroboration of her own work and the existence of the VFLOAT system. For example, Dr. Leeser explained that her account of the VFLOAT system is “corroborated, for example, by the slides for my presentation at HPEC 2002 . . . at which I discussed how our work with VFLOAT demonstrated that 31 adders for the IEEE single-precision format would fit on a Xilinx VirtexXCV1000 FPGA.” *Id.* at 45 n.88. Dr. Leeser also cited her HPEC 2002 Slides as corroborating the fact that she and her graduate students publicly disclosed the existence and details of the VFLOAT system. *Id.* ¶ 146 (“We had also publicly disclosed such knowledge and use . . . and these disclosures are corroborated, for example, by the slides for my HPEC 2002 presentation.”). Dr. Leeser likewise identified the VFLOAT Source Code itself as contemporaneous corroboration of the existence and operation of the VFLOAT system. *Id.* ¶ 187 (“[T]his knowledge and use is corroborated by contemporaneous documents, including, for example, the code for VFLOAT itself.”). Dr. Leeser similarly cited her HPEC 2002 Abstract as corroborating the fact that she presented on the VFLOAT system at that conference: “My attendance and presentation at HPEC 2002 is corroborated by the conference agenda as well as the HPEC 2002 Abstract.” *Id.* ¶ 146.

C. Dr. Sunil Khatri’s March 3, 2023 Rebuttal Report

On March 3, 2023, Singular issued the rebuttal report of its technical expert, Dr. Sunil

Cumulative Opinion Testimony of Dr. John Gustafson, although Dr. Leeser opined on the ultimate issue of invalidity in her report, Google does not intend to elicit her ultimate opinions unless Singular opens the door, e.g., by implying she does not believe the Asserted Patents are invalid. Google will instead reserve those ultimate opinions for Dr. Gustafson’s trial testimony, so long as his testimony is not precluded.

Khatri. According to Dr. Khatri, his report was “responding to the expert reports of Dr. Miriam Leaser and Dr. John Gustafson . . . in which Google’s experts opine on the validity of the patent claims that have been asserted by Singular.” Ex. 2 (Khatri Rebuttal Rpt.) ¶ 2. Dr. Khatri’s rebuttal report did not analyze, discuss, or even mention the Leaser Exhibits. He did not, for example, opine on the extent to which the Lesser Exhibits were disseminated, or whether or how they would have been located before the critical date by an interested person of ordinary skill in the art exercising reasonable diligence.⁷ Nor did Dr. Khatri identify any search methodology that would have led a skilled searcher conducting a reasonably diligent search to the Leaser Exhibits.

D. Dr. Leaser’s March 8, 2023 Deposition

On March 8, 2023, Singular deposed Dr. Leaser. Despite questioning her for a full seven hours, Singular’s counsel did not ask a single question about the Leaser Exhibits, or even mark them as deposition exhibits. Singular’s counsel did not, for example, inquire about the extent to which they were disseminated, or whether or how an interested person of ordinary skill in the art exercising reasonable diligence would have located the Leaser Exhibits before the critical date. Nor did Singular’s counsel ask about the HPEC 2002 or MAPLD ’04 conferences.

III. LEGAL STANDARD

Although styled as a “Motion to Exclude,” Singular’s Motion is in substance a motion for partial summary judgment, and should be treated as such. While nominally based on Federal Rules of Evidence 403 and 702, *see* Mot. at 1–2, the Motion does not discuss probative value, unfair prejudice, jury confusion, or any other factors bearing on a Rule 403 analysis, nor does it contest Dr. Leaser’s qualifications or the reliability or relevance of her testimony under Rule

⁷ The Asserted Patents both purport to claim priority to U.S. provisional patent application No. 61/218,691, which was filed on June 19, 2009.

702. Instead, the Motion seeks to partially adjudicate IPR estoppel—an affirmative defense on which Singular bears the burden of proof—with respect to the Leaser Exhibits. *See Ironburg Inventions Ltd. v. Valve Corp.*, 64 F.4th 1274, 1299 (Fed. Cir. 2023) (explaining that burden of proof “rests on the patent holder, as the party asserting and seeking to benefit from the affirmative defense of IPR estoppel”). Accordingly, the Motion raises underlying issues of fact. *See Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1348 (Fed. Cir. 2016) (“Whether a reference qualifies as a printed publication is a legal conclusion based on underlying factual determinations.”); *Palomar Techs., Inc. v. MRSI Sys., LLC*, 373 F. Supp. 3d 322, 331 (D. Mass. 2019) (“[T]he issue of whether a skilled, diligent search reasonably should have uncovered a reference is a question of fact.”). Singular’s Motion should therefore be treated as a motion for summary judgment—with burdens applied and inferences drawn as they would be on such a motion—rather than a motion addressing evidentiary issues.⁸ *See Pavo Sols. LLC v. Kingston Tech. Co.*, No. 8:14-cv-01352, 2020 WL 1049911, at *2 (C.D. Cal. Feb. 18, 2020) (noting that “[m]otions seeking to bar, under the doctrine of IPR estoppel, references to prior art . . . are almost exclusively brought at the summary judgment stage” as they “necessitate[] factually-intensive inquiries,” and “declin[ing] to engage in those inquiries” on a motion in limine by patentee); *Meyer Intell. Props. Ltd. v. Bodum, Inc.*, 690 F.3d 1354, 1378 (Fed. Cir. 2012) (reversing “procedurally improper” district court decision that disposed of inequitable conduct

⁸ Specifically, Singular must show “there is no genuine dispute as to any material fact and [that it] is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). “All reasonable inferences are to be drawn in favor of the party opposing summary judgment, in this case [Google], just as all disputed facts are viewed in the light most favorable to [Google].” *O’Connor v. Steeves*, 994 F.2d 905, 907 (1st Cir. 1993). And as Google explained in its opposition to Singular’s earlier IPR Estoppel MSJ, “[a]s the party moving for summary judgment on an issue that it bears the burden of proving, Singular ‘cannot prevail unless the evidence that it provides on [IPR estoppel] is conclusive.’” Dkt. 392 at 3 (quoting *E.E.O.C. v. Union Independiente de la Autoridad de Acueductos y Alcantarillados de Puerto Rico*, 279 F.3d 49, 55 (1st Cir. 2002)).

defense on a motion in limine). Google’s Local Rule 56.1 Statement of Material Disputed Facts, filed herewith, identifies the genuine fact issues that preclude granting Singular’s Motion.

IV. ARGUMENT

A. Singular Has Failed to Prove That the Leaser Exhibits Constitute “Printed Publications” or That They “Reasonably Could Have [Been] Raised” as Grounds in the IPRs.

The Motion should be denied because Singular fails to meet its burden of establishing the absence of any genuine issue of material fact that the Leaser Exhibits are “printed publications.” “Printed publication” in the context of Section 102 and statutory provisions relating to IPR is a term of art with a corresponding legal test on which there is a large body of precedent. *See, e.g., Blue Calypso*, 815 F.3d at 1348 (“Whether a reference qualifies as a printed publication is a legal conclusion based on underlying factual determinations.”); *see* Section IV.A.2, *infra*. Yet Singular has made, at best, only a cursory attempt to establish that any of the Leaser Exhibits constitute “printed publications,” effectively assuming that conclusion from the fact that they are, or at one time were, publicly available or shown at a conference.

Singular’s Motion should be denied for the independent reason that it also fails to carry its separate burden to establish the absence of any genuine issue of material fact that any of the Leaser Exhibits “reasonably could have [been] raised” under Section 315(e)(2) as grounds for IPR. The “reasonably could have raised” inquiry has two established prongs—one subjective and one objective—but Singular has not even attempted to meet its burden under the legal test for either prong. Instead, Singular fashions and applies its own hybrid subjective-objective test that asks whether *Google* reasonably could have been expected to discover the Leaser Exhibits. But that is not the relevant question. And, in any event, Singular’s argument depends entirely on hindsight by incorrectly assuming that a skilled searcher (1) would begin an ostensibly

reasonable search for relevant art by locating and retaining Dr. Leeser, and (2) had prior knowledge of the VFLOAT system as relevant art.

1. Singular Bears the Burden of Proof on These Issues.

There is no question that Singular bears the burden of showing that IPR estoppel under Section 315(e)(2) applies, as Singular has conceded and the Federal Circuit has confirmed. *See* Dkt. 377-1 (admitting that “party seeking to invoke statutory IPR estoppel” has the burden of “showing that it applies”); *Ironburg*, 64 F.4th at 1296–99; *SiOnyx, LLC v. Hamamatsu Photonics K.K.*, 330 F. Supp. 3d 574, 602 (D. Mass. 2018). Moreover, this burden of proof extends to subsidiary factual issues and is not merely an initial burden of production that shifts the burden of proof at some point to the party opposing estoppel. *See Ironburg*, 64 F.4th at 1296–99 (vacating and remanding because “the district court improperly placed the burden of proof on Valve, to show that it could not ‘reasonably . . . have raised’ the Non-Petitioned Grounds in its petition”). Indeed, the Federal Circuit recently confirmed that the burden of proof rests “solely on the patent owner, as the party seeking to benefit from an assertion of estoppel.” *Id.*

2. Singular Has Failed to Conclusively Establish That the Leeser Exhibits Constitute “Printed Publications.”

The Court’s Estoppel MSJ Order ruled that “Google is estopped from using [A] patents and [B] printed publications” of which it was actually aware, or reasonably could have become aware at the time of the IPRs.⁹ Dkt. 447 at 14. IPR estoppel is likewise confined by statute to “patents” and “printed publications” because IPRs can be brought “only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b). The Leeser Exhibits are plainly not patents, so Singular must establish that they constitute “printed publications.”

⁹ Bracketed letters added for identification.

To qualify as a “printed publication,” a reference “must have been sufficiently accessible to the public interested in the art.” *Blue Calypso*, 815 F.3d at 1348. “Public accessibility” is thus “the touchstone in determining whether a reference constitutes a ‘printed publication.’” *Id.* A reference is considered “publicly accessible” if it was “disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *Id.* “In some cases, this inquiry is straightforward. But in other cases, public accessibility depends on a careful, case-by-case examination of how a particular reference was disseminated, to whom, for how long, and under what circumstances.” *Samsung Elecs. Co. v. Infobridge Pte. Ltd.*, 929 F.3d 1363, 1369 (Fed. Cir. 2019).

For example, in *Blue Calypso* the Federal Circuit “addressed the question of how to determine public accessibility of a reference housed on a webpage in one corner of the vast world wide web.” 815 F.3d at 1349. The reference at issue (Ratsimor) was a report written by a university graduate student, who made it available before the critical date “via a hyperlink on the personal webpage that she maintained while she was a student.” *Id.* at 1347–48. The court found that Groupon failed to carry its burden of proving that Ratsimor constituted a “printed publication” because the only evidence of public accessibility was “testimony . . . that [Ratsimor] was ‘publicly available around November 2003’,” but it otherwise “provided no evidence that Ratsimor was disseminated to the interested public before the critical date.” *Id.* at 1349. Even if Ratsimor was publicly available on the student’s university webpage, the court explained, “there was no evidence that the ordinarily skilled artisan would know of [her] personal webpage or its web address” and “Groupon does not point to any evidence indicating that Ratsimor was viewed or downloaded.” *Id.* at 1349–50.

Similarly, in *Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765 (Fed. Cir. 2018), the Federal Circuit found that the Lin reference at issue was not a “printed publication” despite being publicly available on a university website before the critical date. *Id.* at 772–74. Like the Ratsimor reference in *Blue Calypso*, Lin had been uploaded to a university’s public website. *Id.* While this made Lin “technically accessible” in that “someone could theoretically find it on the Internet,” the court explained that “‘public accessibility’ requires more than technical accessibility.” *Infobridge*, 929 F.3d at 1369 (describing *Acceleration Bay*). That the website included “some indexing and search functionality” was insufficient to establish public accessibility because there was inadequate evidence that the site’s search form worked reliably, and the site’s indexing would have required an interested artisan to “skim[] through potentially hundreds of titles in the same year, with most containing unrelated subject matter” or “view[] all titles in the database listed by author.” *Acceleration Bay*, 908 F.3d at 772–74.

Singular implicitly acknowledges that it bears the burden to establish that the Leaser Exhibits constitute “printed publications” but makes almost no effort to carry its burden. *See* Mot. at 2 (“In the IPR Estoppel Order, the Court ruled that Google is estopped from relying on patents and printed publications”); *id.* at 5 (“Accordingly, this ‘other’ VFLOAT evidence falls within the IPR Estoppel Order because the documents are printed publications”). Indeed, Singular provides almost no facts that would enable the Court to undertake a “careful, case-by-case examination of how [each of the Leaser Exhibits] was disseminated, to whom, for how long, and under what circumstances.” *Infobridge*, 929 F.3d at 1369. Singular claims the VFLOAT Source Code and the March 2003 VFLOAT Webpage are both “printed publications” based exclusively on the fact that they are—or at one time were—“publicly available” on the Internet before the critical date; however, that solitary fact is insufficient as a matter of law to

carry Singular’s burden of establishing that they are “printed publications.” Mot. at 3–4; *Blue Calypso*, 815 F.3d at 1347–50; *Acceleration Bay*, 908 F.3d at 772–74. And, of course, the VFLOAT Source Code (i.e., the code library) is not a reference that narratively describes the prior art VFLOAT system; it is code that was *part of* the system itself (i.e., it was used to create the system). Accordingly, it is how Dr. Leeser used that code—and the parameters she chose for floating-point number formats—that is the crux of Google’s invalidity defense based on the VFLOAT system, rather than the code library standing alone.

Singular similarly contends that the other four Leeser Exhibits (the HPEC 2002 Slides; the HPEC 2002 Abstract; the MAPLD ’04 Slides; and the MAPLD ’04 Abstract) are “printed publications” based only on the fact that they were presented at, or submitted to, a conference that took place before the critical date. *See* Mot. at 4. But, again, whether conference materials can qualify as a “printed publication” depends on a host of fact-intensive considerations about the conference, including “the size and nature of the meetings,” “whether they are open to people interested in the subject matter of the material disclosed,” and “whether there is an expectation of confidentiality between the distributor and the recipients of the materials”—almost none of which Singular has addressed.¹⁰ *Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1382 (Fed. Cir. 2018).

¹⁰ Singular’s claim that “slide presentations are deemed printed publications if publicly presented to a knowledgeable audience” misrepresents *Jazz Pharms., Inc. v. Amneal Pharms., LLC*, 895 F.3d 1347 (Fed. Cir. 2018). *See* Mot. at 4 n.2. The “ACA Materials” at issue in *Jazz Pharms.* were deemed “printed publications” not due to presentation at a conference or meeting but because a “Notice in the Federal Register widely disseminated [them] through a hyperlink to a public FDA website where the ACA materials could be accessed,” including an explanation of “what materials were located on the FDA website, approximately when they would be available, and how to navigate to them.” 895 F.3d at 1358. In fact, the court explicitly declined to address whether presentation at a meeting qualified the ACA Materials as “printed publications.” *See id.* at 1358 n.6 (“The record in this case lacks any details regarding the FDA meeting itself—who attended and whether they were persons of ordinary skill, how long the meeting lasted, and whether copies of the ACA materials were distributed. Consequently, the Board did not address whether any potential distribution of the ACA materials at the meeting alone satisfied the ‘public

Indeed, when Singular deposited Dr. Leeser, it never asked her about HPEC 2002 or MAPLD '04, and its Motion provides no details about these conferences other than their name and an approximate number of attendees. Mot. at 4. Singular does not even attempt to address “who attended” these conferences, “whether they were persons of ordinary skill,” “how long the meeting[s] lasted,” or “whether copies of the [Leeser Exhibits] were distributed,” all of which are important factual considerations. *Jazz Pharms.*, 895 F.3d at 1358 n.6.

Singular fails to carry its burden of conclusively establishing that the Leeser Exhibits constitute “printed publications” and does not even provide facts to allow the Court to undertake the required “case-by-case inquiry into the facts and circumstances surrounding the reference’s disclosure to members of the public.” *Medtronic*, 891 F.3d at 1380.

3. Singular Has Failed to Conclusively Establish That the Leeser Exhibits “Reasonably Could Have [Been] Raised” in the IPRs.

Estoppel applies to grounds for IPR that a petitioner “reasonably could have raised.” 35 U.S.C. § 315(e)(2). As this Court has previously explained, the inquiry into whether a petitioner “reasonably could have raised” certain grounds under Section 315(e)(2) “has a subjective prong (did the IPR petitioner actually know about the reference?) and an objective prong (would a reasonable search have discovered the reference?).” *Palomar Techs., Inc. v. MRSI Sys., LLC*, No. CV 18-10236-FDS, 2020 WL 2115625, at *3 (D. Mass. May 4, 2020). Singular does not press a subjective argument that Google was actually aware of the Leeser Exhibits, nor could it because Google already informed Singular’s counsel (before Singular filed this Motion) that Google was not aware of the Leeser Exhibits at the time it filed the IPRs.¹¹ Ex. 3.

accessibility’ standard, and we do not address that possibility here in the first instance.”).

¹¹ On April 23, 2023, Singular’s counsel inquired about “the date(s) that Google first became aware of” Exhibits C–J to Dr. Leeser’s expert report (which includes the Leeser Exhibits). Ex. 3 at 2 (4/24/23 K. Gannon email). After Singular confirmed that responding to the inquiry would

That leaves only the objective prong, which the Federal Circuit recently explained asks whether “a skilled searcher conducting a diligent search reasonably could have been expected to discover” the disputed references. *Ironburg*, 64 F.4th at 1298. “One way to show what a skilled search would have found would be (1) to identify the search string and search source that would identify the allegedly unavailable prior art and (2) present evidence, likely expert testimony, why such a criterion would be part of a skilled searcher’s diligent search.” *Clearlamp, LLC v. LKQ Corp.*, No. 12 C 2533, 2016 WL 4734389, at *9 (N.D. Ill. Mar. 18, 2016). Highlighting the fact-intensive nature of this inquiry, this Court in *Palomar Technologies* held an evidentiary hearing on the issue. 2016 WL 4734389, at *2–3. Palomar, the patentee, offered expert testimony on how a skilled searcher conducting a reasonable search would have located the references at issue, including specifically identifying a database that, in the expert’s opinion, a skilled searcher would have searched (the United States Patent Classification database) and specific search methods and strings that would have located the references in that database. *See id.* at *7.

Singular, by contrast, does not identify *any* sources that a skilled searcher ostensibly would search, search strings that a skilled searcher ostensibly would use, or any other objective evidence that a skilled and diligent searcher reasonably could have been expected to locate the Leaser Exhibits. Nor did Singular seek to have its expert, Dr. Khatri, offer any opinions on these issues. Singular, in other words, does not even attempt to muster any objective evidence, and its Motion can and should be denied on this basis alone.¹² *See SiOnyx*, 330 F. Supp. 3d at 602–03

not result in any waiver, Google’s counsel confirmed that “Google was not aware of the listed documents prior to filing its IPR petitions against the asserted patents.” *Id.* at 1 (4/27/23 N. Speed email).

¹² The absence of record evidence on the objective prong cannot be held against Google. The Federal Circuit has made clear that the burden of proof for IPR estoppel rests “solely on the patent owner, as the party seeking to benefit from an assertion of estoppel,” and that shifting the burden to the accused infringer would be improper. *Ironburg*, 64 F.4th at 1298–99 (explaining

(denying motion for summary judgment of IPR estoppel because patentee “has presented no factual evidence showing that a skilled searcher would have found Adkisson”); *M-I LLC v. FPUSA, LLC*, No. 5:15-CV-406, 2020 WL 13413830, at *12 (W.D. Tex. Aug. 20, 2020) (same, because patentee “presented no expert affidavits or other factual evidence” that “a skilled, diligent search reasonably should have uncovered” the disputed reference); *Accelaron, LLC v. Dell, Inc.*, No. 1:12-CV-4123, 2020 WL 10353767, at *3 (N.D. Ga. Mar. 30, 2020) (denying motion to strike based on IPR estoppel because patentee “ha[d] not identified a search string and search source that would identify the [disputed reference] or any evidence why such a criterion would be part of a skilled searcher’s diligent search”).

a. Singular’s hybrid subjective-objective argument is irrelevant and fundamentally flawed.

Rather than addressing the objective prong of the inquiry under Section 315(e)(2) with *objective* evidence, Singular implicitly fashions its own hybrid test by arguing that *Google* could have become aware of the Leeser Exhibits once it retained Dr. Leeser as an expert in this case because, in Singular’s view, Google “certainly reasonably could have” “requested [her] to provide all relevant documentation relating to VFLOAT” before filing the IPR petitions. Mot. at 5-6. In other words, Singular makes the partly subjective, partly objective argument that because Google was *subjectively* aware of Dr. Leeser (having found and retained her), it *objectively* could reasonably have become aware of the Leeser Exhibits. But the Federal Circuit has expressly rejected transforming the objective prong of Section 315(e)(2) into a hybrid subjective-objective inquiry that turns on what any particular searchers did in fact find: “The inquiry into what a

that district court erred by faulting accused infringer Valve for “offer[ing] no evidence concerning the degree of difficulty involved in locating the prior art references at issue” and remanding “[b]ecause the district court improperly placed the burden of proof on Valve”).

skilled and diligent searcher would reasonably have discovered is ultimately concerned with what the searcher of ordinary skill *would* find through reasonable diligence and not what an actual researcher in fact *did* find through whatever level of diligence she exercised.”¹³ *Ironburg*, 64 F.4th at 1299 (emphasis in original); *accord Palomar Techs.*, 2020 WL 2115625, at *9 (“Because the inquiry is objective, any actual search performed at the relevant time is not conclusive evidence of a reasonable search.”).

But even assuming that Google’s eventual ability to locate the Leeser Exhibits could somehow be considered objective evidence of the results of a skilled search, Singular’s proffered “search” is fatally flawed for two reasons. **First**, it assumes Dr. Leeser has been located and retained, and uses that assumption as a jumping-off point for how the Leeser Exhibits could have been located, rather than starting with the Asserted Patents. As this Court recognized in *Palomar Technologies*, a reasonable search that leads a skilled searcher to the disputed reference must always start from the asserted patent, because that is where an ordinary skilled searcher would begin. 2020 WL 2115625, at *11 (“However one defines the scope of a reasonable search—hours consumed, references reviewed, searches performed, or some combination of those factors or others—surely any reasonable search must begin with the [asserted patent] itself.”). Indeed, when Palomar offered evidence that a skilled searcher could have located the disputed references by using a particular prior art reference (Isaacs) as the starting point for an ostensibly reasonable search, this Court rejected the proffered “search” because it did not start with the asserted patent:

It is certainly true that MRSI located Isaacs before the IPR proceeding . . . and that finding Isaacs could have led a searcher to [the disputed references]. ***It does not***

¹³ The Federal Circuit notably observed that actual prior art searches “employ[ing] ‘scorched earth’ tactics . . . may be irrelevant to a determination of what would have been discovered by an ordinarily skilled searcher acting with merely reasonable diligence,” and concluded that the district court erred by assuming that the cited prior art search “was only ‘reasonably’ diligent and did not involve extraordinary measures.” *Ironburg*, 64 F.4th at 1298–99.

follow, however, that a reasonably diligent search should have started with Isaacs; it in fact should have started . . . with the '327 Patent. . . . Put another way, if a skilled searcher started with the Isaacs reference as it ran an invalidity search for the '327 Patent, the [disputed] reference could be found without undue effort. . . . But that is not the same as showing that starting with just the '327 Patent, a skilled searcher conducting a diligent search would have found the [disputed] reference with a reasonable degree of time and effort.

Id. at *11–12. Like the ostensibly reasonable search in *Palomar Technologies*, Singular’s proffered “search”—i.e., requesting Dr. Leeser “to provide all relevant documentation relating to VFLOAT”—uses the fact that Dr. Leeser has been located and retained as its starting point, rather than starting from the Asserted Patents and showing how the Leeser Exhibits could have been located from there. “It is certainly true that [Google] located [Dr. Leeser] before the IPR proceeding . . . and that finding [Dr. Leeser] could have led a searcher to [the Leeser Exhibits]. It does not follow, however, that a reasonably diligent search should have started with [Dr. Leeser]; it in fact should have started . . . with the [Asserted Patents].” *Id.*

Second, Singular’s proffered “search” is improperly based on hindsight. Even assuming a skilled searcher had located and retained Dr. Leeser as an expert, they would only know to “request[] [her] to provide all relevant documentation relating to VFLOAT”—i.e., the “search” that Singular suggests—with hindsight knowledge that the VFLOAT system is relevant prior art to the Asserted Patents, but an ostensibly reasonable search cannot be based on hindsight. As this Court has previously explained:

In the context of the estoppel bar of § 315(e)(2), courts should be particularly cautious about accepting a hindsight analysis. Whenever a party seeks to invoke the estoppel bar, there will be both a challenged patent and a disputed reference that was not raised in the IPR proceeding. . . . It stands to reason, therefore, that in hindsight there will almost always be a seemingly simple search pathway that could have led a searcher . . . to the reference.

But that cannot be the standard by which to judge a reasonable search. Instead, the principal question is what a reasonable searcher should have been expected to do at the outset, . . . which requires consideration of a multitude of factors, including selecting the right places to search and using the right combination of keywords.

Of course, what happens once the search is underway also bears on the inquiry; that involves not only making judgments as to what leads to pursue and what to ignore, but also when to stop the search altogether. An analysis tainted by hindsight sheds little light on that inquiry.

Palomar Techs., 2020 WL 2115625, at *14–15. In other words, even assuming *arguendo* that Dr. Leeser herself can be a proper starting point for an ostensibly reasonable search by a skilled searcher (it is not, as discussed above), a skilled searcher would have no way to know that they should “request[] Dr. Leeser to provide all relevant documentation relating to VFLOAT” without first knowing that VFLOAT is relevant prior art. Singular’s proffered search “obviously employ[s] a hindsight approach” in which the ostensibly skilled searcher already knows exactly what they are looking for (and where to find it), and it therefore “sheds little light on” the objective question of whether a skilled searcher conducting a diligent search reasonably could have been expected to locate the Leeser Exhibits. *Id.* at *14; *see also id.* (“The reason, of course, that Kunin was able to use those search terms to mark out a clear path to the disputed references is simple: he knew where he wanted to end up. It is one thing to identify a search path from one patent to another with a few simple steps. It is quite another to find a single reference, starting from scratch, among tens of millions of items in a database.”).

b. Even considering Singular’s hybrid subjective-objective argument, a genuine fact issue precludes granting Singular’s Motion.

Even assuming Singular’s hybrid argument is relevant to the objective inquiry into whether the Leeser Exhibits “reasonably could have [been] raised” as grounds in the IPRs, and even if the fundamental flaws in its “search” are ignored, the record evidence creates a genuine fact issue that precludes granting Singular’s motion. While Singular points to the subjective fact that Google retained Dr. Leeser as purported evidence that the Leeser Exhibits “reasonably could have [been] raised,” there is also subjective record evidence to the contrary—i.e., that actually

undertaken searches by a skilled and diligent searcher did not in fact locate the Leeser Exhibits. During prosecution for both the Asserted Patents, the Examiner never located or identified the Leeser Exhibits as pertinent art despite trying numerous search strings. Ex. 4 ('273 patent file history); Ex. 5 ('156 patent file history). To the extent the Court considers Google's retention of Dr. Leeser as in any way relevant to the objective prong of the inquiry under Section 315(e)(2), this contrary evidence creates a genuine issue of fact that precludes granting Singular's motion. *See SiOnyx*, 330 F. Supp. 3d at 603 (fact that "examiner of the [asserted] patent tried 56 search strings and still did not turn up Adkisson" created "a genuine question of material fact as to whether a diligent, skilled searcher would have found Adkisson").

B. Google Should Be Allowed to Introduce and Use the Leeser Exhibits To Corroborate Dr. Leeser's Testimony About the VFLOAT System.

Irrespective of the estoppel inquiry, Google should be permitted to introduce and use the Leeser Exhibits at trial as contemporaneous corroboration of Dr. Leeser's work on and related to the VFLOAT system, because Dr. Leeser herself identifies the Leeser Exhibits as corroborative and the law requires at least some corroboration for a prior inventor's testimony.

As the Court's Estoppel MSJ Order recognized, Google identified and disclosed the VFLOAT system as prior art that Google contends invalidates the asserted claims under the "known or used by others," "in public use," and "made in this country by another" prongs of Sections 102(a), (b), & (g)(2).¹⁴ Dkt. 447 at 13. It is well-settled that invalidity must be proven by clear and convincing evidence. *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011). Oral testimony by a prior inventor, standing alone, "will generally not suffice as 'clear and convincing' evidence of invalidity." *TransWeb, LLC v. 3M Innovative Props. Co.*, 812 F.3d

¹⁴ To be clear, Google's invalidity theories include both anticipation and obviousness.

1295, 1301 (Fed. Cir. 2016); *see also Finnigan Corp. v. Int’l Trade Comm’n*, 180 F.3d 1354, 1370 (Fed. Cir. 1999) (oral testimony of prior inventor “alone cannot surmount the hurdle that the clear and convincing evidence standard imposes in proving patent invalidity”).¹⁵ “Rather, such oral testimony must be corroborated by some other evidence.” *TransWeb*, 812 F.3d at 1301. Dr. Leaser’s expert report identifies the Leaser Exhibits as corroboration, as described above. *See* Section II.B, *supra*. Given the legal need for corroboration and Dr. Leaser’s express reliance on the Leaser Exhibits as such, Google should be permitted to introduce the Leaser Exhibits at trial to meet its evidentiary burden with contemporaneous corroboration of Dr. Leaser’s testimony. *See Cal. Inst. of Tech. v. Broadcom Ltd.*, No. CV 16-3714, 2019 WL 8192255, at *12 (C.D. Cal. Aug. 9, 2019) (agreeing that prior inventor’s papers and slides could “play a corroborating or supportive role to other evidentiary sources” notwithstanding IPR estoppel, disagreeing that defendants should be “wholly precluded from referencing or relying on the papers and slides themselves”), *aff’d*, 25 F.4th 976 (Fed. Cir. 2022).

Nor is corroboration only important as a legal matter; as a practical matter, the jury will expect to see documentary corroboration for Dr. Leaser’s oral testimony given the nature of her work and the fact that she will be giving a firsthand account of it. As the Federal Circuit has repeatedly observed when explaining the need for corroboration, virtually all commercial and scientific activity in modern times leaves a paper trail. *See, e.g., Finnigan*, 180 F.3d at 1366 (“[I]nvalidating activities . . . are normally documented by tangible evidence such as devices, schematics, or other materials that typically accompany the inventive process.”); *Woodland Tr. v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1373 (Fed. Cir. 1998) (“It is rare indeed that some

¹⁵ The corroboration requirement applies whether invalidity is based on prior use or knowledge under Section 102(a), public use of the invention under Section 102(b), or prior invention before the patentee under Section 102(g)(2). *See Finnigan*, 180 F.3d at 1367.

physical record (e.g., a written document such as notes, letters, invoices, notebooks, or a sketch or drawing or photograph showing the device, a model, or some other contemporaneous record) does not exist.”). When Dr. Leeser discusses the VFLOAT system’s source code, for example, the jury will invariably expect the source code to be shown to them and possibly even explained by Dr. Leeser with reference to specific programming in the code. Likewise, when Dr. Leeser discusses her presentations at HPEC 2002 or MAPLD ’04, the jury will invariably expect to see the corresponding PowerPoint slides used by her. Precluding Dr. Leeser from using the Leeser Exhibits to corroborate her testimony will leave the jury with the obviously mistaken impression that her testimony about a project from over 20 years ago is unsupported, seriously prejudicing invalidity grounds that the Court has already found are not subject to IPR estoppel. Estoppel should not be applied so broadly as to preclude the use of the Leeser Exhibits even as corroboration. *See Cal. Inst. of Tech.*, 2019 WL 8192255, at *12.

V. CONCLUSION¹⁶

For the foregoing reasons, Singular’s Motion to Exclude Certain Documents and Testimony of Dr. Miriam Leeser Due to IPR Estoppel (Dkt. 475) should be denied.

¹⁶ Singular’s cursory argument regarding Local Rule 16.6(d)(4)(G) and its Request for Production No. 18 lacks merit. *See* Mot. at 6. Local Rule 16.6(d)(4) calls for a “[p]reliminary [p]roduction,” and subsection (G) only requires production of documents “sufficient to support” invalidity defenses, not every potentially relevant document. In any event, Singular has never previously complained about Google’s L.R. 16.6(d)(4)(G) production. Google also appropriately objected to Singular’s overbroad RFP No. 18, which in any event cannot cover documents that were not in Google’s possession, custody, or control at the time. Moreover, it is common for experts to identify additional materials relevant to their opinions in the course of preparing a report, and to produce those (if needed) along with the report. Indeed, all of Singular’s experts, in all of their opening and rebuttal expert reports, identified and relied on materials that Singular had not previously produced, collectively amounting to hundreds of documents. Singular’s argument on this issue would likewise require exclusion of all documents relied on or cited by all of Singular’s experts that were not previously produced.

Respectfully submitted,

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